

ATTACHMENT 4. PROJECT DESCRIPTION

4.1 DESCRIPTION OF PROPOSED PROJECT

Two of the most important groundwater basins in Southern California are the Central Basin and the West Coast Basin (CBWCB), which are located in the southern portion of Los Angeles County (see Figure 4.1 below). Groundwater in the CBWCB meets approximately a third of the overall water supply needs of nearly 4 million residents and businesses in the 43 cities overlying the basins. Over 240,000 acre-feet per year (afy) are pumped from the basins for municipal and industrial use. It is critical for WRD to properly manage this groundwater resource to ensure its future availability. WRD is the State of California's designated groundwater monitoring entity for these basins under its California Statewide Groundwater Elevation Monitoring Program (CASGEM). Part of this responsibility is to carry out detailed investigations to identify and manage threats to the drinking water aquifers from surface contamination sources. These investigations meet WRD's mission of protecting the groundwater basins under its purview.

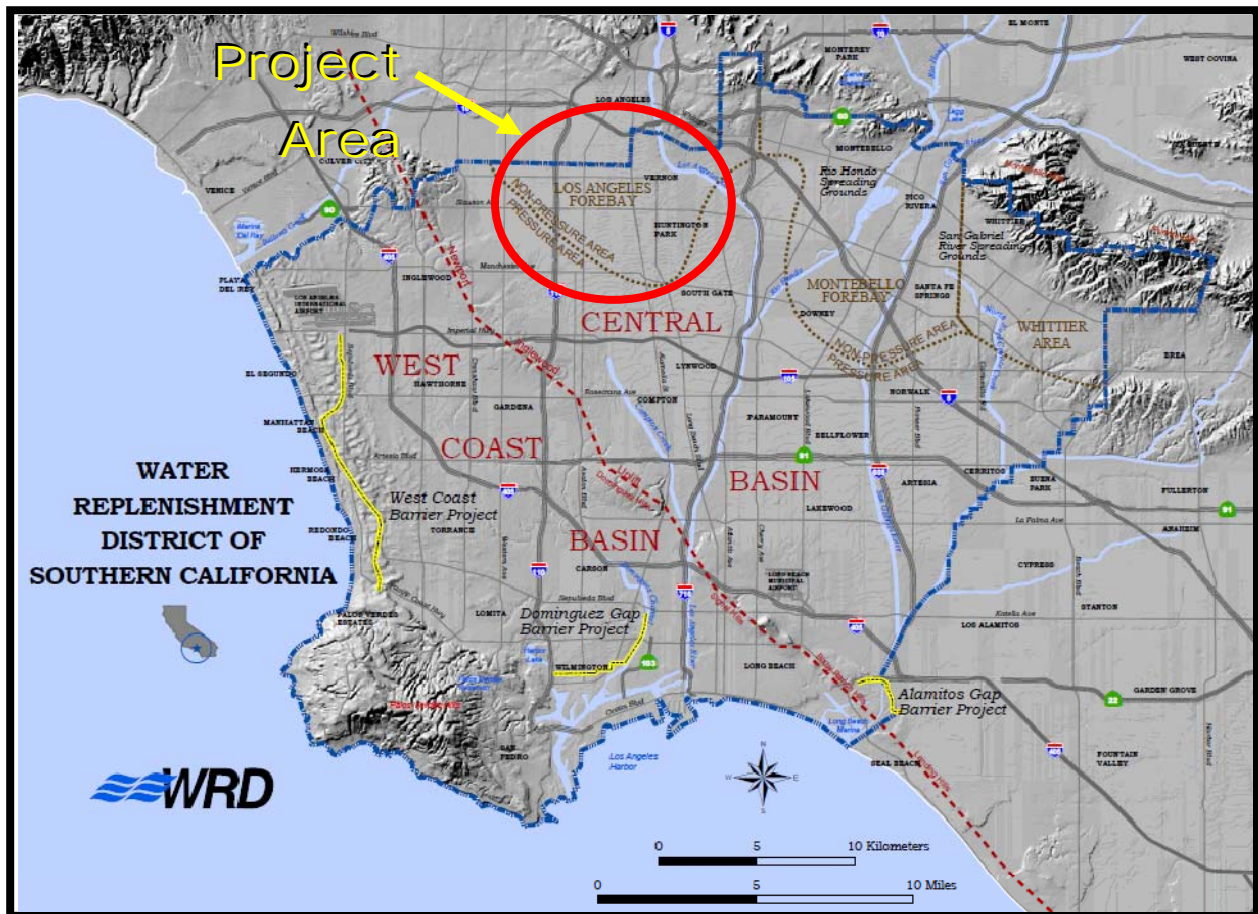


Figure 4.1 – Map of Project Area (Los Angeles Forebay of Central Basin)

Source: WRD

The Central Basin covers approximately 270 square miles and is divided into four sections: the Los Angeles Forebay, the Montebello Forebay, the Whittier Area, and the Pressure Area (California Department of Water Resources, 1961). The two forebays represent areas of unconfined aquifers (water

table aquifers) that allow percolation of surface water down into the deeper aquifers to replenish the basins. Thus, it is easier for shallow groundwater contamination in the forebays to migrate into deeper aquifers than in other areas of the basin, thereby threatening the drinking water supply.

In 2005, a Memorandum of Understanding was established between the California Department of Toxic Substances Control (DTSC), United States Environmental Protection Agency (USEPA), and Los Angeles Regional Water Quality Control Board (LARWQCB), and United States Geological Survey (USGS) to share data on contaminated groundwater sites located within the CBWCB. As a key stakeholder, WRD has been tracking and working in close consultation with the regulatory agencies to provide data and technical support to expedite investigations and cleanups at major groundwater contaminated sites within the basins.

Since 2007, WRD and DTSC have been working together to investigate the groundwater beneath the former AAD Distribution and Dry Cleaning Inc. (AAD) site, which is located 2306 E. 38th Street in the City of Vernon, within the Los Angeles Forebay of the Central Basin. From 1986 to 2000, AAD stored and treated waste tetrachloroethene (PCE) and PCE-contaminated filter media, primarily from dry cleaning facilities. The liquid PCE wastes were distilled on site and treated filter media and distillation sludge were shipped off site for disposal. In December 2000, the site was abandoned and approximately 1,600 drums containing hazardous waste material subsequently were removed by the USEPA Superfund Emergency Response Department.



Figure 4.2 – Location of AAD Site in Los Angeles Forebay
Source: WRD

There are six groundwater monitoring wells associated with the former AAD site (see Figure 4.3 below). Three of the wells are screened in the shallow zone (i.e. 220-foot depth or Gage Aquifer) and the remaining three wells are screened in the deep zone (i.e. 310-foot depth or Hollydale Aquifer). Elevated concentrations of volatile organic compounds (VOCs) and perchlorate, a component of solid rocket fuel amongst other uses, have been detected in some of the wells. In the shallow zone, groundwater flows in a northeast direction and trichloroethene (TCE) was detected at a maximum concentration of 1,100 micrograms per liter ($\mu\text{g/L}$) in 2010. In the deep zone, groundwater flows in a southeast direction and perchlorate was detected at maximum concentration of 4,400 $\mu\text{g/L}$ ¹ in 2010. The California Maximum Contaminant Levels for TCE and perchlorate are 5 $\mu\text{g/L}$ and 6 $\mu\text{g/L}$, respectively. Through previous subsurface investigations conducted at the former AAD site, DTSC confirmed that the groundwater contamination is not related to the former site activities.

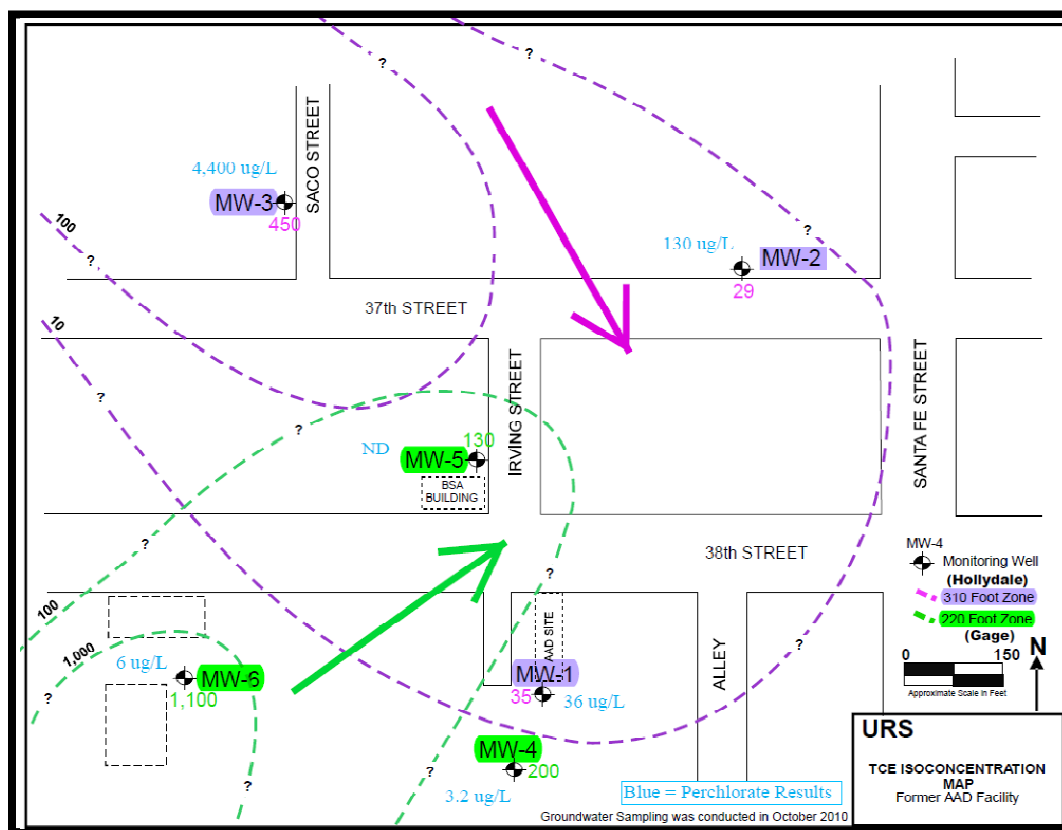


Figure 4.3 – TCE & Perchlorate Concentrations in AAD Wells with Groundwater Flow Directions

Source: URS Corporation²

¹ This concentration is higher than several well-known California perchlorate sites currently being investigated under the oversight of the USEPA, including the Aerojet General Corp. facility in Rancho Cordova, the Lawrence Livermore National Laboratory in Livermore, the NASA Jet Propulsion Laboratory in Pasadena, the Rialto-Colton area water supply wells in San Bernardino County, and the area downgradient of the Stringfellow Superfund Site in Riverside County.

² October 2010 Groundwater Monitoring Report, Former AAD Distribution and Dry Cleaning Facility, 2306 East 38th Street, Vernon, California, dated January 5, 2011, prepared by URS Corporation

Groundwater contamination is detrimental to water supplies because of potential health effects, and because if not addressed, the contamination ("plume") tends to migrate and spread laterally and vertically throughout the aquifer, thereby impacting a larger volume of groundwater over time. Within a 2-mile radius of the former AAD site, there are approximately 13 drinking water wells that are mostly perforated at depths deeper than 300 feet below ground surface (bgs). VOCs and perchlorate have been detected in deeper monitoring wells and drinking water wells in the site vicinity, thereby indicating multiple or regional sources for the perchlorate and VOCs in groundwater.

Current data suggests that the source(s) of the high concentrations of perchlorate in the deep groundwater zone originates upgradient (i.e. north or northwest) of the former AAD site. There are no identified or confirmed upgradient sources for the groundwater contamination. DTSC and WRD have previously conducted records searches and identified potential sources for the elevated concentrations of VOCs and perchlorate. Most notable were a former perchlorate manufacturer, Western Electrochemical Company (WECCO) and a perchloric acid user, O'Conner Electroplating; both operated in the 1940s at properties located approximately 1.5 miles north and 1.8 miles northwest of the former AAD site, respectively (see Figure 4.4 below). There are limited records available for these potential source locations.

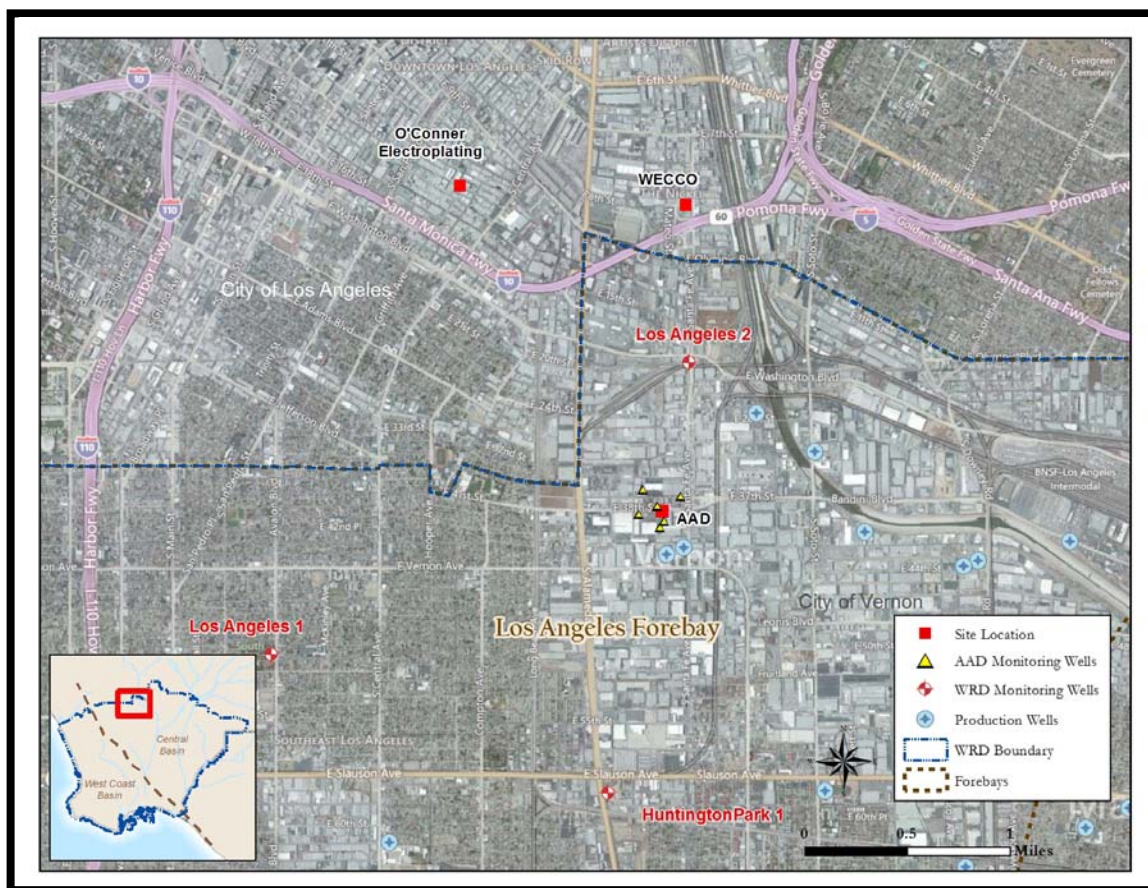


Figure 4.4 – Sites and Wells within the Project Area (Los Angeles Forebay)

Source: WRD

The threat to drinking water resources in the Los Angeles Forebay appears substantial in breadth and consequence. Therefore, this proposed project, the Los Angeles Forebay Groundwater Investigation (Project), is necessary to identify the potential source(s) of contamination as a critical step in protecting drinking water supplies in the Los Angeles area, specifically the Central Basin and West Coast Basin. This proposed investigation will consist of drilling soil borings and collecting and analyzing groundwater samples for VOCs and perchlorate. The data collected from this investigation will assist in assessing the extent of the regional VOC and perchlorate plumes within the Los Angeles Forebay and will be utilized by the regulatory agencies (DTSC and LARWQCB) to eventually facilitate remediation of the plumes.

4.2 PROJECT GOALS AND OBJECTIVES

The goals of the proposed Project are to protect drinking water supplies in the Los Angeles Forebay and collect data that ultimately would be used to clean up groundwater contamination. The objectives of this Project are to:

1. Identify the potential source(s) of VOCs and perchlorate in groundwater within the Los Angeles Forebay.
2. Develop a better understanding of the groundwater flow system within the Los Angeles Forebay.
3. Assess the horizontal and vertical extent of the regional VOC and perchlorate plumes within the Los Angeles Forebay.

Once the probable contaminant source(s) are identified, the regulatory agency (either DTSC or LARWQCB) can issue orders to potentially responsible parties (PRPs) and require these PRPs to fund further characterization of the contaminant plumes and implement remedial actions under the oversight of the regulatory agency.

4.3 SUPPORT OF GWMP GOALS AND OBJECTIVES

The Project supports the goals and objectives described in the 2003 Strategic Plan, a summary of which is provided in **Attachment 3**. Specifically, this Project relates to the third goal, which is to “Protect and Preserve Water Quality in the Central Basin and West Coast Basin.”

The Project will assist the Task Force in identifying the potential source(s) of contaminants that have been detected in groundwater. The groundwater data collected from soil borings proposed as part of this investigation will assist in meeting two of the objectives associated with this goal:

1. **Monitor Water Quality of the Basins:** The continued groundwater monitoring of the Central Basin and West Coast Basin is integral to WRD’s ability to maintain high quality water in the basins. Information obtained through basin monitoring supports the development and implementation of new projects and also provides the data required to continuously evaluate ongoing projects.
2. **Address Groundwater Contamination and Prevention Issues:** Existing groundwater contamination in the Central Basin and West Coast Basin can hamper future innovative projects and programs. Without treatment, existing contamination may migrate laterally and deeper, thereby rendering a greater portion of the basins useless for future groundwater storage projects. As a regional groundwater manager, WRD recognizes the importance of removing existing contamination and, therefore, is interested in projects and programs intended to make groundwater contamination treatment economically feasible to water rights holders.

4.4 SUMMARY OF PROJECT TASKS AND FACILITIES

This proposed Project will consist of drilling soil borings and collecting and analyzing groundwater samples for VOCs and perchlorate. The groundwater data collected from this investigation will be from soil borings that will be backfilled in accordance with applicable regulatory requirements. No permanent project facilities will be installed/constructed as part of this investigation.

4.5 STAKEHOLDER COLLABORATION

As part of its Groundwater Contamination Prevention Program, WRD established the Central and West Coast Basins Groundwater Contamination Forum, a data-sharing and discussion forum with stakeholders that include the United States Environmental Protection Agency (USEPA), the California Department of Toxic Substances Control (DTSC), the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB), the California Department of Public Health (CDPH), the United States Geological Survey (USGS), and various cities and water purveyors. WRD coordinates/facilitates the Forum meetings throughout the year (3 to 4 times per year) and at each of the meetings, the status of investigations and cleanups of high-priority groundwater contaminated sites are discussed. As a key stakeholder, WRD tracks and works in close consultation with the Federal and State regulatory agencies to provide data and technical support to expedite investigations and cleanups at major groundwater contaminated sites within the Central Basin and West Coast Basin.

Recognizing the threat to drinking water supplies and the overlapping jurisdictions and functions of the various stakeholders, an interagency *Los Angeles Forebay Groundwater Task Force (Task Force)* will be established as a planning tool to coordinate and align regulators and water purveyors/agencies and focus limited resources to collaboratively address the groundwater contamination in the Los Angeles Forebay. The Task Force will consist of the following stakeholder entities:

- WRD – Groundwater manager of the Central Basin and West Coast Basin
- DTSC – State regulatory agency responsible for enforcing the investigation and cleanup of contaminated sites
- LARWQCB – State regulatory agency responsible for enforcing the investigation and cleanup of contaminated sites
- CDPH – Regulates drinking water in California
- City of Vernon – Water purveyor with drinking water wells located in the vicinity of the former AAD site
- USEPA – Federal regulatory agency responsible for enforcing the investigation and cleanup of contaminated sites
- USGS – Federal agency with extensive knowledge of the local geology and hydrogeology

The Task Force will meet quarterly beginning in July or August 2012 and WRD will coordinate/facilitate these meetings.

4.6 PUBLIC OUTREACH AND COMMUNITY SUPPORT FOR THE PROPOSED PROJECT

WRD's External Affairs Department (Department) supports WRD's mission to provide, protect, and preserve high-quality groundwater for the benefit of the residents and businesses in the Central Basin and West Coast Basins. The Department is responsible for developing and promoting relationships with legislative, business, environmental and community interests. To accomplish this goal, the Department maintains a strategic approach to governmental affairs, media relations, and community outreach. The

Department also provides a framework for implementing targeted strategies and actions to develop, sustain and mobilize support from key stakeholders for WRD projects and programs.

4.6.1 PUBLIC OUTREACH

WRD has an established process for informing groundwater users, stakeholders, and the general public about the proposed Los Angeles Forebay Groundwater Investigation. WRD currently has a standing Groundwater Quality Committee which meets monthly to discuss water quality issues within the basins where the proposed Project has been discussed. Agendas and minutes for these meetings are posted on the WRD's website and can be found at the following weblink: <http://www.wrd.org/board/water-board-groundwater-committee.php>. Additionally, hard copies of the agendas are mailed to basin stakeholders and members of the general public upon request.

The proposed Project was discussed at the following meetings:

May 23, 2012	WRD Groundwater Quality Committee Meeting
June 15, 2012	WRD Board of Directors Meeting
July 25, 2012 (proposed)	WRD Groundwater Quality Committee Meeting

At each of the above-referenced meetings, there was an opportunity for public comment. The agenda from each of these meetings are provided in **Appendix B**. There was no opposition voiced against this Project at any of the public meetings at which it has been discussed and no letters of opposition have been received.

In addition to public outreach activities associated with specific programs and projects, such as the proposed Project, WRD has general outreach programs to educate the public and stakeholders on groundwater issues. Included in these programs are:

- Educational Partnership
- Groundwater Tour Program
- Speakers Bureau
- Legislative Briefings

WRD prepares and issues a Newsletter ("The Source") that is distributed to 100,000 households, which includes up-to-date information on District programs, projects and items of interest to consumers. The Newsletter is also posted on WRD's website at the following link: <http://www.wrd.org/news/water-replenishment-source-newsletter.php>.

Each year, WRD prepares and distributes to the water purveyors in the Central Basin and West Coast Basin ("CBWCB") an Engineering and Survey Report and a Regional Groundwater Monitoring Report. The Engineering and Survey Report documents groundwater conditions in the the past, current, and ensuing year and contains information on groundwater production, annual and accumulated overdraft, water levels, quantity, source, and cost of replenishment water, and a discussion of necessary projects and programs to protect and preserve the groundwater resources of the basins. The Regional Groundwater Monitoring Report presents the most comprehensive information to date regarding groundwater levels and water quality throughout the CBWCB, based on data collected from a network of nearly 300 monitoring wells at over 50 locations throughout the CBWCB. Both technical reports are posted on WRD's website at the following link: <http://www.wrd.org/engineering/groundwater-engineering-reports.php>.

Additionally, WRD prepares and issues Technical Bulletins to water purveyors in the CBWCB. The purpose of these documents are to provide detailed technical information regarding groundwater and

groundwater issues, such as WRD's Safe Drinking Water Program, groundwater contamination prevention and cleanup, water quality standards, hydrogeological techniques and equipment, etc. These Technical Bulletins can be downloaded from WRD's website at the following link: <http://www.wrd.org/engineering/drinking-water-documents.php>.

WRD employs five full time External Affairs staff to provide support for public outreach programs for projects, such as this proposed Project.

In 2005, a Memorandum of Understanding (MOU) was executed between WRD, DTSC, USEPA, and LARWQCB among other agencies to share data on contaminated groundwater sites located within the Central Basin and West Coast Basin. A copy of the MOU is included in **Appendix A**. Shortly thereafter, WRD established the Central and West Coast Basins Groundwater Contamination Forum (Forum), whose members consisted of those agencies that are parties to the MOU and other stakeholders, including the California Department of Public Health (CDPH), the United States Geological Survey (USGS), and various cities and water purveyors. The purpose of the Forum is to provide a means for data-sharing and promote discussion amongst stakeholders to expedite cleanup of shallow groundwater contamination plumes before they impact deeper drinking water aquifers. WRD coordinates/facilitates the Forum meetings throughout the year (3 to 4 times per year) and at each of the meetings, the status of investigations and cleanups of high-priority groundwater contaminated sites are discussed. The meetings are held at WRD's office in Lakewood, California, and invitations are sent to the Forum members by e-mail. Attendees can participate in these meetings in person or remotely using a live web interface.

The public outreach process for this Project will occur through WRD's regularly scheduled monthly Groundwater Quality Committee meetings, which are subject to the Brown Act, and ongoing meetings of the Task Force and those agencies that are parties to the MOU (see **Appendix A**). Input received at these meetings will be used to assess groundwater in the Los Angeles Forebay, as described in the Work Plan (**Attachment 5**).

Since all the soil borings are proposed in public right-of-ways, the Task Force will work directly with the public agencies with jurisdiction over these proposed drilling sites. The Project will be implemented by the Task Force and supporters of this grant application, i.e. parties to the MOU.

4.6.2 Community Support

WRD has received support from the following agencies, as demonstrated by their participation in the Los Angeles Forebay Groundwater Investigation Task Force and/or the Central and West Coast Basins Groundwater Contamination Forum:

- California Department of Toxic Substances Control
- Los Angeles Regional Water Quality Control Board
- City of Vernon
- California Department of Public Health
- United States Environmental Protection Agency
- United States Geological Survey

The Task Force includes groundwater managers, water purveyors, and regulatory agencies at the local, State, and Federal levels (see Section 4.5). There has been no opposition voiced against this proposed Project at any of the public meetings at which it has been discussed and no letters of opposition were received.

Any opposition that may arise as a result of this Project will be discussed openly at WRD's Groundwater Quality Committee meetings, which are open to the public and held on a monthly basis.

4.7 FUNDING MECHANISM OF THE PROJECT AFTER GRANT FUNDS ARE EXPENDED

Through previous subsurface investigations conducted at the former AAD site in the City of Vernon, the lead regulatory agency, DTSC, confirmed that the high concentrations of VOCs and perchlorate in groundwater beneath the site are not related to former AAD activities. Since there are no responsible parties identified, there are limited State funds available to further investigate the extent of groundwater contamination. The purpose of this proposed Project is to identify the potential source(s) of VOCs and perchlorate in the groundwater within the Los Angeles Forebay and assess the extent of the regional VOC and perchlorate plumes within the Los Angeles Forebay.

At the conclusion of the Project, it is anticipated that the Task Force will help to identify the potential source(s) of the VOC and perchlorate contamination in groundwater. New and existing groundwater quality data will have been collected and compiled and the groundwater flow system of the Project area will be developed. In addition, this new information will provide a better understanding of the Los Angeles Forebay, improve groundwater management, and serve as the basis to perform additional work and groundwater monitoring beyond the Project.

The Task Force is committed to continuing this investigation to identify the threats to the drinking water aquifers. As a result, the Task Force anticipates that additional work will be performed after completion of the Project. Depending on the results of the Project, a second phase may involve the following:

- Installation of future monitoring wells at key locations in the Los Angeles Forebay
- Groundwater sampling at focused locations or at existing production and monitoring wells within the Los Angeles Forebay
- In-depth research of facilities that operated in the past and may have contributed to the groundwater contamination
- Once a probable contaminant source(s) is identified, the regulatory agency (either DTSC or LARWQCB) can issue orders to potentially responsible parties (PRPs) and require these PRPs to fund further characterization of the contaminant plumes and implement remedial actions under the oversight of the regulatory agency.

In addition, WRD's Regional Groundwater Monitoring Program has been in place since 1991 to fund monitoring and reporting of water quality issues in the basins. WRD has invested over \$6 million in nested monitoring wells throughout the basins and spends over \$1 million per year in sampling, laboratory analysis, and reporting of water quality issues. WRD receives funds from a pumping assessment that is placed on the groundwater pumpers in the basins to support the ongoing sampling, laboratory analysis, and reporting. Hence, as long as the groundwater is pumped and put to beneficial use, WRD will be able to fund projects dedicated to water quality and water supply.

4.8 INFORMATION DISSEMINATION

The large amount of new information generated from the Project will be readily disseminated to DWR and the public. The data and findings will be packaged with the public in mind so Project products will be complete, user friendly, and free of charge. There will be a database with new water quality data, and all data generated will be in electronic format that can be submitted to the DWR.

The primary Project deliverables are the Draft and Final Los Angeles Forebay Groundwater Investigation Reports. The reports will be submitted to stakeholders and DWR and available in electronic format. Information obtained from this Project will be made available to download from WRD's publicly accessible website and notification of availability will also be included in bill inserts to basin water rights holders. Also, the final report can be made available on WRD's website, which can be accessed by the public. WRD's website also includes a free online "Wells GIS" database³ that enables the public to view information on water wells in the basins, including water quality, water levels, and pumpage (production) amounts. In addition, WRD's Groundwater Quality Committee will receive periodic Project updates at regular meetings where written and oral staff reports are given. These meetings are open to the public and the staff reports and meeting minutes are also available online⁴.

³ <http://gis.wrd.org/wrdmap/login.asp>

⁴ <http://www.wrd.org/board/water-board-groundwater-committee.php>